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| Code of course: BMI-LOTD-325E.06, BMA-LOTD-325.06 |
| Title of course: Group theory |
| Title of course in English: Group theory |
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| Lecturer: Zalán Gyenis |

Content of the course:

Definition of a group, Groups as symmetries, Examples: cyclic, dihedral, symmetric, matrix groups, Homomorphisms, Subgroups and quotient groups, Cosets, Conjugacy classes,

Normal subgroups, Lagrange's theorem, The isomorphism theorems.

Actions of groups on sets, Symmetric group and alternating group, Cayley's theorem, Groups of symmetries of plactonic solids, Direct products of groups, Group automorphisms,

Sylow's theorem, Applications: classification of groups of small order ,

The alternating group is simple, Classification of finite abelian groups, finitely-generated abelian groups. Free groups, some infinite groups.

Grading criteria, specific requirements:

Grading is based on homeworks (70%) and a final exam (30%).

Prerequisites: Basic algebra

Required reading:

D. S. Dummit and R. M. Foote, Abstract Algebra, second edition, John Wiley & Sons, 1999.